Title: Early Warning System for Landslide Hazard Caused by Earthquake and Rainfall in West Sumatera Province, Indonesia

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Abstract: On Wednesday September 30, 2009, at 17:16 pm, a 7.6 Mw earthquake strucked the west coast of Sumatera, Indonesia. The earthquake caused severe landslide, death of 1,195 people and significant damage to approximately 140,000 houses and 4,000 other buildings. Out of the 1,195 people who died, 375 people had been buried in the landslide. The source of September 30, 2009 earthquake is in the intraplate not in the interplate (megathrusts). Interplate is the source of large earthquakes (>8.5) which occur repeatedly every 150 and 200 years. In recent times, large destructive earthquakes occurred in 2004, 2005, 2007 and 2010 along the Sumatra trough, for which the moment magnitudes were Mw 9.1, 8.6, 8.5, and 7.7, respectively. The magnitude of 2010 Mentawai earthquake was smaller than expected, hence, the strain has not been fully released. This means that there is still a high possibility of another gigantic earthquake occurring in the near future to this area. This paper presents the results of soil data in the laboratory using soil taken from the location of landslides and using the software SLOPE/W from Geoslope to obtain the amount of rainfall that caused the landslides. This is done to reduce the casualty of landslides due to the large earthquake that was followed by heavy rainfall. A simple early warning system based on rainfall threshold that causes landslides can be done by the community themselves.